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2007

### Nebraska Summary: S614 Massey Ferguson 7490

Nebraska Tractor Test Laboratory

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# SUMMARY OF OECD TEST 2420–NEBRASKA SUMMARY 614

## MASSEY FERGUSON 7490 DYNAV T DIESEL

### INFINITELY VARIABLE TRANSMISSION

#### Tractor chassis S/N R194055 and higher

#### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
<b>Rated Engine Speed—(PTO speed—1081 rpm)</b>					
153.8 (114.7)	2200	9.24 (35.00)	0.428 (0.260)	16.64 (3.28)	
<b>Standard Power Take-off Speed(1000 rpm)</b>					
174.3 (130.0)	2034	9.67 (36.61)	0.395 (0.240)	18.02 (3.55)	
<b>Maximum Power (1 hour)</b>					
179.7 (134.0)	2000	9.73 (36.84)	0.386 (0.235)	18.46 (3.64)	
VARYING POWER AND FUEL CONSUMPTION					
153.8 (114.7)	2200	9.24 (35.00)	0.428 (0.260)	16.64 (3.28)	Air temperature
132.0 (98.4)	2220	8.08 (30.59)	0.436 (0.265)	16.34 (3.22)	68°F (20°C)
99.2 (74.0)	2229	6.41 (24.26)	0.460 (0.280)	15.48 (3.05)	Relative humidity
66.5 (49.6)	2238	4.76 (18.02)	0.510 (0.310)	13.97 (2.75)	53%
33.4 (24.9)	2248	3.21 (12.13)	0.684 (0.416)	10.42 (2.05)	Barometer
--	2255	1.87 (7.09)	--	--	29.9" Hg (101.2 kPa)
Maximum Torque -594.7 lb.-ft. (806.3 Nm) at 1500 rpm					
Maximum Torque Rise -61.9%					
Torque rise at 1750 engine rpm -42%					

#### DRAWBAR PERFORMANCE

##### (Unballasted - Front Drive Engaged)

##### FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—Turtle 8</b>									
111.4 (83.1)	8195 (36.5)	5.10 (8.21)	2199	3.4	0.538 (0.327)	13.20 (2.60)	185 (85)	70 (21)	29.8 (100.9)
<b>75% of Pull at Maximum Power—Turtle 8</b>									
85.8 (64.0)	6185 (27.5)	5.20 (8.37)	2222	2.1	0.580 (0.353)	12.23 (2.41)	183 (84)	70 (21)	29.8 (100.9)
<b>50% of Pull at Maximum Power—Turtle 8</b>									
57.8 (43.1)	4120 (18.3)	5.26 (8.46)	2220	2.2	0.672 (0.409)	10.56 (2.08)	181 (83)	70 (21)	29.8 (100.9)
<b>75% of Pull at Reduced Engine Speed—Turtle 9</b>									
86.2 (64.3)	6165 (27.4)	5.24 (8.44)	1977	3.1	0.538 (0.327)	13.20 (2.60)	181 (83)	70 (21)	29.8 (100.9)
<b>50% of Pull at Reduced Engine Speed—Turtle 9</b>									
57.8 (43.1)	4140 (18.4)	5.24 (8.42)	1960	3.2	0.600 (0.365)	11.83 (2.33)	181 (83)	66 (19)	29.8 (100.9)

**Location of tests:** Groupement d'Antony, Parc de Touvoie, BP 44 Antony, France 92163

**Dates of tests:** June - September, 2007

Sound tests: June 24, 2008 Nebraska Tractor Test Laboratory, Lincoln Ne.

**Manufacturer:** AGCO S.A. BP 307, Avenue Blaise Pascal, 60026 Beauvais, France

**FUEL and OIL:** Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.855 **Fuel weight** 7.12 lbs/gal (0.853 kg/l) **Oil SAE** 15W40 **API service classification** CH4 **Transmission and hydraulic lubricant** BP Terrac Tractan 910W/40 **Front axle lubricant** SAE 85W140 API GL-5

**ENGINE:** Make Sisu Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** T06951 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.252" x 4.724" (108.0 mm x 120.0 mm) **Compression ratio** 18.5 to 1 **Displacement** 402 cu in (6596 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat and variable speed fan

**CHASSIS:** **Type** front wheel assist **Serial No.** S131034 **Tread width** rear 63.1" (1604 mm) to 70.8" (1798 mm) front 67.0" (1702 mm) to 75.4" (1915 mm) **Wheelbase** 118.4" (3007 mm) **Hydraulic control system** direct engine drive **Transmission** CVT. A combination of mechanical and hydrostatic sections allow an infinite speed adjustment within the ranges noted. The transmission has two mechanical ranges. **Nominal travel speeds mph (km/h)** forward: Low range 0-19 (0-30), high range 0-25 (0-40) reverse: 0-19 (0-30) **Clutch** a foot pedal controls the hydrostatic oil flow **Brakes** multiple wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1998 engine rpm or 1000 rpm at 2033 engine rpm **Unladen tractor mass** 16600 lb (7530 kg)

## DRAWBAR PERFORMANCE

### (Unballasted - Front Drive Engaged) MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)	
93.6 (69.8)	14185 (63.1)	2.47 (3.98)	2202	15.0	Turtle 3 0.590 (0.359)	12.03 (2.37)	187 (86)	68 (20)	29.8 (100.8)
101.2 (75.5)	13960 (62.1)	2.72 (4.38)	2197	12.9	Turtle 4 0.569 (0.346)	12.49 (2.46)	187 (86)	68 (20)	29.8 (100.8)
118.9 (88.7)	13690 (60.9)	3.26 (5.24)	2183	9.8	Turtle 5 0.547 (0.333)	12.99 (2.56)	187 (86)	68 (20)	29.8 (100.8)
127.9 (95.4)	13570 (60.4)	3.53 (5.69)	2133	10.7	Turtle 6 0.526 (0.320)	13.50 (2.66)	183 (84)	70 (21)	29.8 (100.8)
136.4 (101.7)	13015 (57.9)	3.93 (6.33)	2044	6.9	Turtle 7 0.501 (0.305)	14.16 (2.79)	174 (79)	68 (20)	29.8 (100.8)
143.8 (107.2)	10610 (47.2)	5.08 (8.18)	2000	5.8	Turtle 8 0.483 (0.294)	14.71 (2.90)	190 (88)	70 (21)	29.8 (100.9)
144.2 (107.5)	8825 (39.3)	6.13 (9.86)	2001	5.8	Turtle 9 0.481 (0.292)	14.77 (2.91)	192 (89)	66 (19)	29.8 (100.9)
142.4 (106.2)	7710 (34.3)	6.93 (11.15)	2000	3.8	Turtle 10 0.487 (0.297)	14.57 (2.87)	192 (89)	66 (19)	29.8 (100.9)
140.8 (105.0)	6705 (29.8)	7.87 (12.67)	1999	3.9	*Turtle 11 0.493 (0.300)	14.41 (2.84)	183 (84)	66 (19)	29.8 (100.9)
138.4 (103.2)	10385 (46.2)	5.00 (8.04)	1999	7.8	Rabbit 9 0.503 (0.306)	14.11 (2.78)	189 (87)	68 (20)	29.8 (100.9)
141.9 (105.8)	7865 (35.0)	6.77 (10.89)	2002	4.8	Rabbit 10 0.486 (0.295)	14.62 (2.88)	190 (88)	68 (20)	29.8 (100.9)
141.3 (105.4)	7105 (31.6)	7.46 (12.00)	2001	4.8	*Rabbit 11 0.488 (0.297)	14.57 (2.87)	192 (89)	68 (20)	29.8 (100.9)
142.3 (106.1)	6215 (27.6)	8.59 (13.82)	2001	4.2	*Rabbit 12 0.487 (0.296)	14.57 (2.87)	183 (84)	68 (20)	29.8 (100.9)

\*Front drive disengaged

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**NOTE 1:** The performance figures on this report are the result of replacing the electronic engine control module of the Massey Ferguson 7485 with the Massey Ferguson 7490 module.

**NOTE 2:** The performance figures on this report apply to tractors with chassis S/N R194055 and higher.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD test procedures. The manufacturer's claim of 39 GPM (150 lpm) remote hydraulic flow was not verified. The performance figures on this summary were taken from a test conducted under the OECD Code II test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **2420**, Nebraska Summary 614, November 24, 2008.

Roger M. Hoy  
Director

M.F. Kocher  
V.I. Adamchuk  
J.A. Smith  
Board of Tractor Test Engineers

## TIRES, BALLAST AND WEIGHT

**Rear tires** - No., size, ply & psi (kPa)

Ballast - Duals (total)

- Liquid (total)

**Front tires** - No., size, ply & psi (kPa)

Ballast - Liquid (total)

- Cast Iron (total)

**Height of Drawbar**

**Static Weight with operator** - Rear

- Front

- Total

### With Ballast

Four 480/80R46; \*\*, 9 (60)

2190 lb (993 kg)

None

Two 420/90R30; \*\*, 15 (100)

None

1700 lb (770 kg)

22.4 in (570 mm)

11995 lb (5440 kg)

8925 lb (4050 kg)

20920 lb (9490 kg)

### Without Ballast

Two 520/85R42; \*\*, 15 (100)

None

None

Two 16.9R30; \*\*, 15 (100)

None

None

22.4 in (570 mm)

10000 lb (4535 kg)

6765 lb (3070 kg)

16765 lb (7605 kg)

**DRAWBAR PERFORMANCE**  
**(Ballasted - Front Drive Engaged)**  
**MAXIMUM POWER IN SELECTED GEARS**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Consumption Hp.hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Turtle 1									
79.1 (59.0)	19490 (86.7)	1.52 (2.45)	2214	15.2	0.636 (0.387)	11.17 (2.20)	180 (82)	68 (20)	29.9 (101.1)
Turtle 2									
104.3 (77.8)	19410 (86.3)	2.02 (3.24)	2199	14.8	0.610 (0.371)	11.63 (2.29)	187 (86)	70 (21)	29.9 (101.1)
Turtle 3									
129.5 (96.6)	19020 (84.6)	2.55 (4.11)	2055	11.6	0.535 (0.325)	13.27 (2.61)	185 (85)	70 (21)	29.9 (101.1)
Turtle 4									
133.3 (99.4)	18590 (82.7)	2.69 (4.33)	2045	9.5	0.518 (0.315)	13.71 (2.70)	189 (87)	72 (22)	29.9 (101.1)
Turtle 5									
140.7 (104.9)	15895 (70.7)	3.32 (5.34)	2006	7.8	0.496 (0.302)	14.31 (2.82)	189 (87)	72 (22)	29.9 (101.1)
Turtle 6									
142.3 (106.1)	14215 (63.2)	3.75 (6.04)	2003	6.9	0.490 (0.298)	14.48 (2.85)	189 (87)	73 (23)	29.9 (101.1)
Turtle 7									
144.1 (107.5)	12500 (55.6)	4.32 (6.96)	1999	5.7	0.484 (0.294)	14.67 (2.89)	190 (88)	73 (23)	29.9 (101.1)
Turtle 8									
143.0 (106.6)	10590 (47.1)	5.06 (8.15)	2002	4.6	0.491 (0.298)	14.48 (2.85)	190 (88)	73 (23)	29.9 (101.1)
Turtle 9									
141.1 (105.2)	9040 (40.2)	5.85 (9.42)	2003	4.3	0.492 (0.299)	14.43 (2.84)	190 (88)	73 (23)	29.8 (101.0)
Turtle 10									
140.7 (104.9)	7890 (35.1)	6.69 (10.76)	1999	3.5	0.496 (0.301)	14.33 (2.82)	190 (88)	73 (23)	29.8 (101.0)
Turtle 11									
136.5 (101.8)	6540 (29.1)	7.83 (12.60)	2003	3.2	0.510 (0.310)	13.92 (2.74)	190 (89)	73 (23)	29.8 (101.0)
Rabbit 9									
138.4 (103.2)	9125 (40.6)	5.69 (9.15)	2001	4.3	0.501 (0.305)	14.16 (2.79)	190 (89)	73 (23)	29.8 (101.0)
Rabbit 10									
139.7 (104.2)	7455 (33.2)	7.03 (11.31)	2000	3.9	0.494 (0.301)	14.37 (2.83)	189 (87)	73 (23)	29.8 (101.0)
Rabbit 11									
137.2 (102.3)	6340 (28.2)	8.12 (13.06)	1999	3.2	0.507 (0.308)	14.01 (2.76)	194 (90)	75 (24)	29.8 (101.0)
Rabbit 12									
136.2 (101.6)	5580 (24.8)	9.15 (14.73)	2003	2.4	0.520 (0.316)	13.65 (2.69)	190 (88)	75 (24)	29.8 (101.0)

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load at 5.2 mph (8.4 km/h) (engine 1200 rpm)	62.0	60.4
At no load at 5.2 mph (8.4 km/h) (engine 2250 rpm)	66.5	66.2
Bystander in Rabbit range		82.3

## HYDRAULIC PERFORMANCE

CATEGORY: II

Quick Attach: None

OECD Static test

Maximum force exerted through whole range: 13915 lbs (61.9 kN)

i) Opening pressure of relief valve: NA

Sustained pressure of the open relief valve: 2900 psi (200 bar)

ii) Pump delivery rate at minimum pressure: 30.5 GPM (115.6 l/min)

iii) Pump delivery rate at maximum

hydraulic power: 29.3 GPM (111.0 l/min)

Delivery pressure: 2265 psi (156 bar)

Power: 38.7 HP (28.9 kW)

## THREE POINT HITCH PERFORMANCE - SAE Test

Observed Maximum Pressure psi. (bar) 2900 (200)

Location: lift cylinder

Hydraulic oil temperature: °F (°C) 158 (70)

Location: hydraulic sump

Category: II

Quick attach: None

System pressure 2610 psi (180 bar)

Hitch point distance to ground level in. (mm) 12.0 (306) 17.7 (450) 23.6 (600) 27.6 (700) 33.5 (850) 38.3 (974)

Lift force on frame lb 16545 16590 16930 17175 17065 16140

" " " " " " (kN) (73.6) (73.8) (75.3) (76.4) (75.9) (71.8)

## HITCH DIMENSIONS AS TESTED - NO LOAD

	SAE TEST		OECD TEST	
	inch	mm	inch	mm
A	29.7	754	30.7	780
B	14.0	355	14.0	355
C	14.4	365	14.4	365
D	12.0	305	12.0	305
E	12.6	321	10.9	276
F	10.9	276	10.9	276
G	36.4	925	36.4	925
H	2.4	60	2.4	60
I	15.0	380	15.6	397
J	25.5	649	25.5	649
K	26.2	665	26.2	665
L	47.6	1210	47.6	1210
M	27.0	685	27.0	685
N	40.6	1030	40.6	1030
O	12.0	306	7.8	199
P	44.6	1132	49.6	1259
Q	38.3	974	39.6	1006
R	28.7	729	30.7	780

